

Appl. No. 10/811,444
Amdt. Dated June 2, 2006
Reply to Office Action of March 6, 2006

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A field emission display comprising:

at least a cathode electrode;

at least a carbon nanotube array having an end surface adapted for emission of electrons therefrom, each end surface being in electrical connection with a corresponding cathode electrode;

an anode electrode;

at least a gate electrode arranged between the at least a cathode electrode and the anode electrode;

a spacer adapted for insulating the at least a cathode electrode and the at least a gate electrode; and

an intermediate layer arranged between the gate electrode and the spacer.

~~wherein each carbon nanotube array is in electrical connection with a corresponding cathode electrode, and the end surface of the carbon nanotube array is substantially flush with an end of the spacer.~~

Claim 2 (original): The filed emission display as described in claim 1, wherein a material of the spacer is selected from the group consisting of heatproof glass, metal coated with insulating material, silicon, silicon oxide, mica and ceramic material.

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Claim 3 (original): The field emission display as described in claim 2, wherein a height of the spacer is in the range from 1 micron to 10 mm.

Claim 4 (original): The field emission display as described in claim 1, wherein each carbon nanotube array is connected to the corresponding cathode electrode via a layer of negative feedback resistance, which is formed between the carbon nanotube array and the cathode electrode.

Claims 5-6 (canceled)

Claim 7 (original): A field emission display comprising:

at least a cathode electrode;

an anode electrode;

at least a gate electrode arranged between the cathode electrodes and the anode electrode;

at least a carbon anotube array, each electrically connected to a corresponding cathode electrode; and

a spacer insulatively separating the gate electrodes from the cathode electrodes;

wherein an end surface of each carbon nanotube array is flush with a top end of the spacer nearest the gate electrodes; and an intermediate layer having a predetermined thickness is arranged between the gate electrodes and the spacer.

Claim 8 (original): The field emission display as described in claim 7, wherein a material of the intermediate layer is selected from the group consisting of heatproof glass, metal coated with insulating material, silicon,

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silicon oxide, mica and ceramic material.

Claim 9 (original): The field emission display as described in claim 8, wherein a thickness of the intermediate layer is in the range from 1 micron to 1000 microns.

Claim 10 (original): The field emission display as described in claim 7, wherein a material of the spacer is selected from the group consisting of heatproof glass, metal coated with insulating material, silicon, silicon oxide, mica and ceramic material.

Claim 11 (original): The field emission display as described in claim 7, wherein a height of the spacer is in the range from 1 micron to 10 mm.

Claim 12 (original): The field emission display as described in claim 7, wherein each carbon nanotube array is connected to a corresponding cathode electrode via a layer of negative feedback resistance.

Claim 13 (original): The field emission display as described in claim 7, wherein a thin protective layer is arranged between the spacer and the intermediate layer.

Claim 14 (original): The field emission display as described in claim 13, wherein a thickness of the thin protective layer is in the range from 10 nanometers to 1 micron.

Claim 15 (original): The field emission display as described in claim 13, wherein a catalyst layer is arranged between the thin protective layer and the spacer.

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Claim 16 (original): The field emission display as described in claim 15, wherein a thickness of the catalyst layer is in the range from 1 nanometer to 10 nanometers.

Claim 17 (original): A field emission display comprising:

a cathode assembly;

a carbon nanotube array having a first end in electrical connection with the cathode assembly and a second end which is substantially planar;

a support member arranged adjacent the carbon nanotube array;

a gate electrode positioned on the support member; and

a phosphor screen assembly having an anode electrode facing the carbon nanotube array;

wherein the support member comprises an insulative spacer and an intermediate layer on a top of the insulative spacer, each of which having a predetermined thickness, and the second end of the carbon nanotube array is flush with a top end of the spacer.

Claim 18 (original): The field emission display as described in claim 17, wherein the cathode assembly comprises a layer of negative feedback resistance.

Claim 19 (original): The field emission display as described in claim 17, wherein a flatness of the carbon nanotube array is less than 1 micron.

Claim 20 (original): The field emission display as described in claim 17, wherein the phosphor screen assembly comprises a phosphor layer.

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Claim 21 (original): The field emission display as described in claim 17, wherein the thickness of the intermediate layer is in the range from 1 micron to 1000 microns.

Claim 22 (original): The field emission display as described in claim 17, wherein the support member further comprises a protective layer between the insulative spacer and the intermediate layer.

Claim 23 (original): The field emission display as described in claim 22, wherein a thickness of the protective layer is in the range from 10 nanometers to 1 micron.

Claims 24-25 (canceled)

Claim 26 (new): The field emission display as described in claim 1, wherein the end surface of the carbon nanotube array is substantially flush with an end of the spacer.

Claim 27 (new): The field emission display as described in claim 1, wherein a thickness of the intermediate layer is in the range from 1 micron to 1000 microns.